

COMMITTEE ON EQUAL OPPORTUNITIES IN SCIENCE AND ENGINEERING

Meeting Minutes
February 25-26, 2008

Meeting Site

National Science Foundation (NSF), Room 1235 S; 4201 Wilson Boulevard; Arlington, Virginia
22230

Meeting Participants

Members Present:

Dr. Joseph S. Francisco, Purdue University, West Lafayette, IN
Dr. Wesley L. Harris, CEOSE Chair, Massachusetts Institute of Technology, Cambridge, MA
Dr. Beverly Karplus Hartline, Delaware State University, Dover, DE
Dr. Mae C. Jemison, The Jemison Group, Houston, TX (Via Telcon)
Dr. Marshall G. Jones, GE Global Research, Niskayuna, NY
Dr. Richard E. Ladner, University of Washington, Seattle, WA
Dr. Marigold Linton, University of Kansas, Lawrence, KS
Dr. Theresa A. Maldonado, CEOSE Vice Chair, Texas A & M University, College Station, TX
Dr. Samuel L. Myers, Jr., HHH Institute of Public Affairs, University of Minnesota,
Minneapolis, MN
Dr. Germán R. Núñez, Texas Tech University Health Sciences Center, Lubbock, TX (2nd Day Only)
Dr. Maria Ong, TERC, Cambridge, MA
Dr. Muriel Poston, Skidmore College, Saratoga Springs, NY

Members Absent:

Ms. Sandra Begay-Campbell, Sandia National Laboratories, Albuquerque, NM
Dr. Robert L. Lichter, Merrimack Consultants, LLC, Great Barrington, MA
Dr. William C. McCarthy, New Mexico State University, Las Cruces, NM

CEOSE Executive Liaison/CEOSE Executive Secretary:

Dr. Margaret E. M. Tolbert, Senior Advisor, Office of Integrative Activities, NSF

OIA/NSF Primary Support Staff Members:

Mr. Daniel Turshon, IT Specialist, Office of Integrative Activities/NSF
Ms. Kamille Williams, Program Assistant, Office of Integrative Activities/NSF
Ms. Betty Wong, Administrative Officer, Office of Integrative Activities/NSF

Non-Members Who Presented Oral or Written Statements, Participated in the Discussions and/or Were Meeting Attendees without Specific Roles:

Dr. Denise Barner, EPSCoR/OIA/NSF Dr. Arden L. Bement, Jr., OD/NSF Dr. Richard Bissell, NRC/The National Academies Dr. Katie Blanding, RDECOM/US Army	Dr. Mark Leddy, EHR/NSF Dr. James Lightbourne, OIA/NSF Dr. Lynnette Madsen, DMR/MPS/NSF Dr. J.V. Martinez, OS/DOE
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<p>Dr. Henry N. Blount, EPSCoR/OIA/NSF Dr. Marta Cehelsky, OD/NSF Dr. Walter V. Collier, C&A Technologies, Inc. Ms. Carmen Cromartie, The Reporter, Inc. Dr. Teresa Davies, OLPA/NSF Dr. Connie K. Della-Piana, OIA/NSF Dr. Luis A. Echegoyen, CHE/MPS/NSF Dr. Joan Frye, OIA/NSF Ms. Sandra Gartrell, The Reporter, Inc. Dr. Lance Haworth, OIA/NSF Dr. Peter H. Henderson, NRC/The National Academies Dr. Fae Kosmo, OD/NSF Dr. Meka Laster, Office of Education/NOAA</p>	<p>Dr. Shirley McBay, QEM Network, Inc. Dr. William E. McHenry, MS eCenter at JSU Dr. Carl Person, NASA Dr. Randy Phelps, OIA/NSF Dr. Earnestine Psalmonds, DGE/EHR/NSF Dr. Celeste Rohlfing, CHE/MPS/NSF Ms. Martha A. Rubenstein, BFA/NSF Ms. Joyce Rudick, ORWH, NIH Dr. Victor Santiago, HRD/EHR/NSF Ms. Marilyn Suiter, HRD/EHR/NSF Dr. Judith Sunley, OAD/SBE Dr. John Whitmarsh, NIH Dr. Robb Winter, OISE/NSF Dr. Terry Woodin, DUE/EHR/NSF</p>
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Meeting Notes

February 25, 2008

Welcome, Opening Remarks, and Introductions: CEOSE Chair: Dr. Wesley L. Harris

The Meeting was called to order at 8:40 a.m. by **Dr. Wesley L. Harris**, who advised of key points in the agenda for the evening. After each person responded to **Dr. Harris**' request to introduce themselves, he reported on the changes in CEOSE membership since the last meeting. **Dr. Maria Ong** is a new member from the Diversity Resource Group at the Technical Education Research Group. **Dr. Theresa A. Maldonado** is the new CEOSE Vice Chair. Members concurred with **Dr. Hartline**'s motion to accept the minutes of the October 16-17, 2007 CEOSE meeting, and they made no requests for changes.

Presentation of Key Points from the Meeting of Dr. Harris with Dr. Arden L. Bement, Jr., Director of the National Science Foundation.

Dr. Harris reported that he was unable to meet with **Dr. Arden L. Bement, Jr.** prior to today's meeting due to bad weather. **Dr. Beverly Karplus Hartline** suggested that CEOSE, in future discussions with **Dr. Bement**, refer to recommendations and other information in her January 22, 2008 letter to **Drs. Bement** and **Olsen**. In response to **Dr. Harris**'s presentation of a Certificate of Appreciation for service as Chair of the Committee (2007-2008), **Dr. Hartline** thanked CEOSE members for their cooperation during her chairmanship and wished **Dr. Harris** well in his role as CEOSE Chair (February 1, 2008 – January 31, 2009).

Dr. Harris introduced **Dr. Lance Haworth**, the new Director of the NSF Office of Integrative Activities. **Dr. Haworth** welcomed the committee and spoke on the importance of the committee's role involving under-represented minorities, women, and persons with disabilities in science and engineering in this country and his interest in seeing the Committee succeed. He spoke of NSF as an agent of change and the relationship of CEOSE as part of the change process.

The Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline.

Dr. Richard Bissell, Executive Director of the Executive Office of the National Research Council (NRC)/The National Academies, and **Dr. Peter H. Henderson**, the Study Director for the NRC Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline, presented information on the study that will be conducted by the previously named committee. The study was requested in a letter to **Dr. Ralph J. Cicerone** (President of The National Academy of Sciences) from **Senators Hillary Rodham Clinton, Edward M. Kennedy, Patsy Murray, and Barbara A. Mikulski**, and it was mandated by Congress in August 2006 in the America Competes Act. As he made his presentation, **Dr. Henderson** distributed flyers describing key questions to be addressed in the study, and he provided a list of the potential NRC committee members. **Dr. Harris** and **Ms. Begay-Campbell** are on the membership list. CEOSE members requested clarifications and suggested a few changes in wording for the flyer. The report that results from the committee's work will address implementation strategies pertinent to its charge, and the committee will prioritize the list of topics to be addressed and will develop milestones and cost estimates. The committee will be chaired by **Dr. Freeman Hrabrowski**, President of the University of Maryland-Baltimore County, and the committee will be balanced in terms of diverse regions, STEM fields, expertise, and types of institutions.

Among the proposed topics to be addressed in the report are the following:

- An examination of key social and institutional factors that shape minority students' decisions to pursue educational programs in STEM fields.
- Barriers and obstacles in various programs that need to be addressed by institutions and the Federal Government, how they are being addressed, what programs have been successful, and what programs offer opportunities.
- Policy interventions that have the most leverage to make a difference, and programs that are already successfully implementing policies to improve recruitment and retention.
- Existing Federal programs that focus on broadening participation and what can be done to improve and expand on those.
- The role of minority issues in STEM fields.
- Supporting/strengthening the workforce.
- Findings, conclusions, and prioritized recommendations from the committee for policy and funding actions.

During the discussion session, CEOSE members made key points pertinent to economics and the hierarchical structure of science; scientific racism and the direction of the NRC study; the complexity of comparing educational achievements among Native American populations, African American, and Hispanic populations; the importance of including in the study an assessment of K-12 education; the entire career formulation and the role of having diverse faculty and mentors promote diversity and inclusiveness; and the analyses of data for use by the NRC committee. **Drs. Bissell** and **Henderson** reiterated that the current discussion will be an ongoing one with members of other organizations and agencies, as well. The effort is to bring together all interested parties to generate ideas that will be useful for the committee when the study begins in June.

Prior to the end of this session, **Dr. Ladner** asked whether persons with disabilities will be addressed in the study. **Dr. Francisco** and other CEOSE members raised questions about the lack of minority leadership representing the National Academy of Science on the NRC committee membership list. This led to a discussion of the very small number of underrepresented minorities in the membership within The National Academies.

Request of CEOSE Members from Dr. Harris

Dr. Harris asked CEOSE members to look at the draft report, “Joining Forces to Broaden Participation in Science and Engineering”. The report addresses several strategic questions, including the responsibility of the committee to execute its mandate from Congress.

Action Item: Dr. Harris asked CEOSE members to provide him with a set of items in bullet format that he may use to prepare for his March 10th meeting as a member of the Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline.

Meeting with Dr. Arden Bement Jr., Director, National Science Foundation

Dr. Bement expressed his appreciation on behalf of the Foundation for the contributions that CEOSE makes to NSF and the STEM community in general. He awarded **Dr. Marshall G. Jones** a Certificate of Appreciation for three years of service as a member of CEOSE. His membership term ends May 31, 2008. Since Ms. Begay-Campbell was unable to attend the meeting, her Certificate of Appreciation will be mailed to her. **Dr. Bement** recognized the presence of a new CEOSE member, **Dr. Ong**. He also acknowledged **Dr. Hartline’s** service as Chair of CEOSE from 2007 to 2008.

After committee introductions, **Dr. Bement** advised that NSF is disappointed with the budget loss of approximately 360 million dollars in FY 2008. This loss equates to approximately 1,000 grants that will not be awarded and 1,600 graduate students who will not be supported. Also, NSF has lost some graduate research fellowships. These fellowships are transportable and have supported students who have founded new companies, such as the founder of Google and 20 Nobel Laureates. This loss also equates to workforce reductions at major facilities and some programs that impact ethnic and racial diversity. The 2009 budget increase represents a huge confirmation of the Foundation by the President. With this budget, NSF is able to support about 50,000 graduate students, many of whom are within two to four years of entering the workforce. The demand for STEM graduates increases approximately 5% per year, but the actual increase is only 1%. The retirement of baby boomers from the Federal Government continues to increase, and this country is becoming more dependent on foreign graduates. These facts have impact on this country, and it is one of the reasons why broadening participation is so critically important. NSF would like to see a greater emphasis on the types of programs that facilitate broadening participation in science and engineering.

Following his brief comments, **Dr. Bement** responded to questions from the CEOSE members. Those questions stimulated discussions of such topics as the January 22, 2008 letter, which covered a number of issues including CEOSE recommendations and concerns, from **Dr. Hartline** to **Drs. Bement** and **Olsen**; obtaining NSF information for the CEOSE report to Congress; the need for data on NSF advisory committee memberships; national graduate fellowships; proposals that have merit but cannot be funded due to budgetary shortfalls; preliminary recommendations from the mini-symposium on institutions serving persons with disabilities; the need for periodic reviews of NSF policies to determine if they have negative impact on populations under-represented in science and engineering; problems at minority serving institutions, especially HBCUs and community colleges, caused by an NSF practice in several programs and the expectation of the reviewer community for several programs to not fund academic year release time (a practice and expectation that interferes with the evaluation of proposals in which requests are included for academic year release time); the impact of the net loss of funding from Congress on the enterprise of science in general; periodic reviews of NSF policies that address broadening participation; and issues affecting under-represented minorities and their choices—or lack of choices—of careers in science and engineering. **Dr. Fae Kosmo** provided explanatory comments on NSF programs, activities, and advisory committees with reference to broadening participation.

Points made by **Dr. Bement** as he responded to questions from CEOSE members were varied and included the following: the encouragement of advisory committees to establish broadening participation subcommittees; the inclusion of an evaluation plan and information on broadening participation in all proposals submitted to NSF; **Dr. Korsmo's** responsibilities in her new position (i.e., reports primarily to **Drs. Olsen** and **Bement** to boost broadening participation across NSF, compiles and disseminates information on Committees of Visitors and advisory committees, and works with program officers to address CEOSE recommendations); the rigorous assessment of programs needed in order to respond to the American Competitiveness Council; strategies used in regards to declined proposals (i.e., NSF returns to investigators unsuccessful proposals accompanied by appropriate explanations regarding insufficient funding or lack of merit, and investigators with proposals in the former category are encouraged to resubmit); the America Competes Act and NSF's efforts to find new mechanisms to hold proposals until funding materializes; the National Science Board required report that contains the data on proposals received and funded or not funded by NSF; the impact of reduced funding on colleges and universities and major facilities; the leadership role that NSF plays within the National Science and Technology Council, especially with the Committee on Science, in partnering with other agencies; NSF crosscutting relationships with other agencies; the need for the National Science Board to review the NSF policy on not allowing academic release time funding.

Action Item: Dr. Myers requested a break-down of data on the race/ethnicity, disability status, and gender of investigators who submit proposals that are not funded by NSF.

Dr. Bement stated that there needs to be more recognition that the United States cannot stay competitive in the world and meet the objectives of the American Competitive Initiative or the America Competes Act without adequate funding.

The National Science Foundation Budget and Its Implications for Broadening Participation

Ms. Martha A. Rubenstein, Director of the NSF Budget Division, gave an overview of the FY 2008 budget and general information on the FY 2009 request for NSF and then focused on funding for STEM programs that broaden the participation of women, under-represented minorities, and persons with disabilities. The total Federal budget increased 6%. However, less than a half percent of that amount was for non-security programs at such agencies as NSF, NIST and DOE. NSF's increase was 13%. The research account increased 16%, education and human resources by 9%. Agency operations went up 8%, and the facilities construction account decreased. The National Science Board and the Inspector General's budgets increased. Broadening participation programs have been more or less the same for the last eight or nine years, and some of these programs are doing fairly well. All NSF directorates have broadening participation activities or programs.

Highlights of funded programs are collected as part of the Government Performance and Results Act (GPRA) requirements. When highlights are submitted, program managers must indicate if they are from research supporting broadening participation and provide details on the activities. Each year thousands of highlights are received by the NSF Budget Office. Of the number received, about two-thirds have broadening participation components.

Following the presentation by **Ms. Rubenstein**, CEOSE members posed several questions. For example, she was asked what the FY 2009 budget would be if one did not take into account the fact that NSF is still attempting to recover from cuts in the FY 2008 budget. The response was that the increase would be 6-7%, which is still significant. In response to questions about the impact of the budget cuts on broadening participation, she promised to follow up her comments with the provision of budgetary information containing breakdowns on the resulting changes in programs and activities in the research directorates. The budget will face many hurdles with the election year, especially in view of a new administration and

the war. **NOTE: The budgetary information that Ms. Rubenstein promised was provided to CEOSE members on the following day.**

Presentation on and Discussion of the America Competes Act

Ms. Theresa (Terry) Davies, Division Director in the NSF Office of Legislative and Public Affairs, discussed with CEOSE members the America Competes Act. This Act authorizes spending for various programs. However, the Congressional Appropriations Committee has the relevant jurisdiction that funds NSF and its programs. **Dr. Bement** has assigned an agency-wide working group to study the various provisions of this Act and to develop recommendations and options for implementation. **Ms. Davies** described the sections (e.g., Reauthorization of Programs, Funding for STEM Education, Meeting Critical State Needs, Mentoring, Cyberinfrastructure, Broader Impacts Merit Review Criterion, Robert NOYCE Teacher Scholarship Program, Encouraging Participation, Hispanic Serving Institutions, Teachers Institutes for the 21st Century, and NAS Report on Diversity in STEM Fields) of the Act and responded to questions from CEOSE members about them. During the question and answer period, CEOSE members addressed a number of topics pertinent to the above sections of the Act. Suggestions by CEOSE members included the consultation of the Inter-University Consortium for Political Research, which has developed specific guidelines for archiving and sharing data; the development of an accountability process to track the impact of the new award strategy on broadening participation overall from the America Competes Act; and the critical need, as NSF responds to the Act, to address under-represented groups in STEM and the inclusion of institutions that are not able to provide undergraduate research experiences in responding to the Act. **Ms. Davies** provided each CEOSE member with a copy of the America Competes Act.

In discussing the visibility of CEOSE, it was noted that Congress is reminded of the existence of CEOSE each time that it receives its biennial report. Heightened interactions with Congress were suggested. Also, the suggestion was made that CEOSE continue its interactions with the NSF Office of Legislative and Public Affairs (OLPA) and that a highlight on each CEOSE meeting be sent to OLPA for packaging and distribution as press releases. **Agreed: That the CEOSE invite members of the Science Committee, the Senate, and Congress to its meetings; that Congressional Science Committee staffers be invited to give at least an annual report during CEOSE meetings; and that there be at least two meetings per year with OLPA/NSF for proactive projections on legislation, not just discussions of what is already acted into laws.**

CEOSE Ad Hoc Subcommittee on Strategic Planning

Dr. Poston reported that members of the *Ad Hoc* Subcommittee on Strategic Planning have looked at the mission of CEOSE and highlighted those areas where external constituencies in scientific and education fields need to work with CEOSE. One of these areas is the interagency sharing of information. They also looked at NSF structural organization, programs, processes, policies, and personnel. One area of importance is holding the responsible officials accountable for NSF programs across the Foundation with regard to participation of individuals from under-represented groups, submission of proposals by individuals and institutions, participation of individuals on panels, COVs, and the like. Additionally they reviewed the impact of NSF's programs that are designed to broaden participation and identified the need to set benchmarks for them. It was suggested that the subcommittee develop a vision for CEOSE and a brief description of obstacles that might have negative impact on the implementation of CEOSE plans. **Action Item: The CEOSE Ad Hoc Subcommittee on Strategic Planning requested recommendations from CEOSE members for strategies for reaching out to various constituent groups that are covered by the CEOSE mandate. Information obtained from a cross-section of the STEM community will help guide the development of the strategic plan.**

Action Item: That there be discussions between the Subcommittee on Strategic Planning and the Subcommittee on Accountability, Evaluation, and Communications.

CEOSE Ad Hoc Subcommittee on Broadening Participation Plan

The newly appointed members to this committee have not had the opportunity to meet; therefore, no report was available.

Action Item: Dr. Tolbert is to contact the Co-Chairs of the NSF Broadening Participation Working Group, and request that at the next CEOSE meeting they give an updated briefing on the NSF Diversity Plan.

Tuesday, February 26, 2008

Opening Comments by the CEOSE Chair

After the completion of his opening statement, which began at 8:40 a.m., **Dr. Harris** presented to **Dr. Núñez** a Certificate of Appreciation for contributions to CEOSE and NSF throughout his tenure as a member of CEOSE. **Dr. Núñez's** membership term ends May 8, 2008.

Discussion on the CEOSE Recommendation

Dr. Harris presented a document called “*The CEOSE Recommendation*”, which was prepared by **Dr. Myers**. This document refers to the broadening participation study for which **Dr. Walter V. Collier** serves as contractor. This sets the context for a recommendation.

RECOMMENDATION: There is no common definition of broadening participation in the STEM fields across agencies as well as variability in the investment in broadening participation efforts. In light of this, and given that there are no CEOSE type structures with independent advisory roles other than that at NSF, and given that CEOSE's Congressional mandate expands opportunities to women, under-represented minorities, and persons with disabilities across the entire STEM enterprise (not just the portion overseen by NSF); and given that NSF's share of the STEM investment is small relative to the whole, be it resolved that the CEOSE members urge the creation of a CEOSE-type committee with advisory responsibilities for not just NSF, but for all federal agencies that to engage in any significant manner in the funding of STEM activities with the potential to effect and influence the participation of women, under-represented minorities and persons with disabilities in STEM fields.

The discussion by CEOSE members led to several questions, one of which was who would authorize/establish this committee. **Dr. Harris** responded that it must ultimately be Congress, and that this would be one large super-committee designed to encourage individual agencies to implement committees on their own; it is empowering legislation for the NSF CEOSE to exist. Currently, the individual agencies have the decision on what to do within their own agency; this would be an overarching committee that has advisory responsibilities to all the federal agencies that are responsible for funding STEM programs and activities. It was suggested that agencies to be involved be given the opportunity to review and comment on this statement before it is submitted to Congress.

Agreed: That CEOSE offer to the leadership of NSF the concept of a super CEOSE-type structure to cover all Federal agencies that are active in STEM fields (the wording of this concept is to be

decided by CEOSE members and reviewed by the other STEM agencies) and that CEOSE remain active as a Congressionally-mandated committee that reports to Congress as it currently does, and that other Federal agencies that are active in STEM each have a similar CEOSE structure.

Agreed: With one exception, CEOSE members voted “yes” in principal to move forward in drafting this statement for review by CEOSE members and Federal agency representatives and for submission to NSF for action.

Discussion of the Broader Impacts Document

CEOSE members, **Dr. Sunley**, and **Dr. Madsen** discussed the document entitled "*CEOSE draft for discussion on February 25th 2008*", prepared by **Dr. McCarthy** who is Chair of the CEOSE *Ad Hoc* Subcommittee on Broadening Participation, and the following action items were developed:

Action Item and Agreement:

1. **Dr. Hartline** agreed to make the agreed-upon changes in the language of the draft and send the revised version to CEOSE members for review prior to the document being submitted to the NSF Director by the CEOSE Chair.
2. **Dr. Myers** moved that the document, subject to the amendment to be added, be submitted to the NSF Director. **Dr. Hartline** seconded the motion. After the motion was carried, CEOSE members voted in favor of this action.

Agreed: CEOSE members agreed to the submission of the broader impacts document to the NSF Director for action after the revisions are made.

Report of the Ad Hoc Subcommittee on Persons with Disabilities - Follow-up Actions to the Mini-Symposium Held October 15, 2007.

Dr. Ladner read to the Committee the six preliminary recommendations made by the CEOSE *Ad Hoc* Subcommittee Persons with Disabilities. These preliminary recommendations were based on information presented at the mini-symposium held in October 2007.

Action Items and Approval:

1. **Dr. Hartline** made a motion to approve the six recommendations, and **Dr. Francisco** seconded the motion. CEOSE members approved the recommendations in total.
2. On behalf of CEOSE, **Dr. Tolbert** is to transmit these recommendations to the NSF Director.
3. **Dr. Tolbert** agreed to immediately have a copy of the report posted on the website with the symposium speeches (http://www.nsf.gov/od/oia/activities/ceose/Oct07_mini.jsp) and later as an attachment to the meeting notes for this meeting.

Reports by CEOSE Liaisons to NSF Advisory Committees

- **B&O AC:** **Dr. Hartline** reported that the B&O Advisory Committee had an extensive NSF orientation session for new members. At that session, **Dr. Jeff Nesbit**, Director of OLPA, spoke about the Broader Impacts criterion and emphasized his perspective for dissemination. There was a presentation on the NSF academy, including the process of updating the design of merit review training. A major portion of the meeting was spent discussing the report by the NSF Broadening Participation Working Group. Additionally, there was a presentation on the total business systems review, which is the way NSF audits some of the performing organizations. This review is so extensive that it looks and feels like an audit. However, it is not clear whether it has much broadening participation overlap.

- *BIO AC*: **Dr. Poston** reported on the meeting of the Biological Sciences Advisory Committee, which met on October 18th and 19th. The two merit review criteria were discussed, with particular attention being paid to the change in the Intellectual Merit Review criterion to include transformative research and how it is to be evaluated. In discussing the Broader Impacts criterion, the focus was on how it is evaluated and whether or not there should be both quantitative and/or qualitative assessments of it throughout NSF. Among the other presentations and discussions were the joint initiative between BIO and EHR in undergraduate education in the biological science, the nature of the pedagogy of teaching the biological sciences at the undergraduate level, the IPAM report, “Science in the Media”, and broadening participation. **Dr. Bement** also held dialogue with the committee. **Dr. Poston** spoke of the tension between research and education and how the reward systems fail to recognize that integration is important, especially as federal funds are provided to institutions. Note was made of the new NRC report on the role of theory in advancing 21st century biology, which was commissioned by BIO this year.
- *CISE AC*: **Dr. Ladner** reported on the CISE Advisory Committee meeting that was held on October 19. It was the first meeting with **Dr. Jeannette Wing**, the new Assistant Director (AD) of CISE, and broadening participation was on her agenda. CISE has a Broadening Participation in Computing (BPC) program, the largest broadening participation program outside of those in EHR. There was also a presentation at that meeting about the NSF broadening participation strategic plan. **Dr. Wing** proposed, Computational Thinking to bring computation into the K-12 curriculum and about making it equivalent in status to biology and physics and chemistry. Also, at the meeting, break-out group discussions were held for the purpose of conducting some visioning for the CISE. One point, which resulted from this brainstorming, is that there is a CISE Broadening Participation Strategic Planning Committee to help that directorate move forward.
- *ENG AC*: **Dr. Jones** was unable to attend the fall meeting of the Engineering Directorate’s Advisory Committee; therefore, he did not give a report.
- *ERE AC*: **Ms. Sandra Begay-Campbell**—who was not present at this CEOSE meeting—attended the past meeting of the Advisory Committee for Environmental Research and Education (AC-ERE) in October 2007; however, she did not have any information to report to CEOSE members.
- *GEO AC*: **Dr. Francisco** was unable to attend the fall meeting of the Advisory Committee for the Geosciences; therefore, he had no report for the committee.
- *MPS AC*: **Dr. Maldonado** reported on the Mathematical and Physical Sciences (MPS) Advisory Committee meeting, which was held on April 8th and 9th. The new AD for the MPS Directorate, Dr. Tony F. Chan, presented CEOSE with an overview of broadening participation plans last June, and since then **Dr. Maldonado** has seen some implementation of the proposals about which he spoke. She reported that all of the divisions within MPS are having workshops with department heads; these workshops are focused on different ethnic/racial groups. The first round of workshops focused on gender, and chemistry followed with a workshop on under-represented minorities. MPS is very active on the broadening participation arena. Each division seems to have a working group that is developing a diversity plan, and the directorate has a directorate-wide committee as well.
- *OCI AC*: **Dr. Harris** reported that the previous OCI Advisory Committee meeting was held via teleconference, a strategy that was a very effective. OCI is very concerned about broadening participation and is supporting it through several programs. It has a subcommittee within the advisory committee that addresses the issues on this topic, and **Dr. Harris** is a member of that subcommittee.
- *OISE AC*: **Dr. Núñez** was unable to attend the last meeting of the OISE Advisory Committee; therefore, he had no report to present. However, he participated in a conference call with the committee during which he spent considerable time talking about broadening participation and broader impacts. *Note*: **Dr. Linton** mentioned that she recently completed a 4-year term as president of SACNAS, and that organization will have an International Polar Year (IPY) activity, which will bring together a traditional ecological knowledge panel of indigenous people from all over the Arctic to discuss ecological topics.

- **SBE AC: Dr. Myers** reported on the Advisory Committee on Social, Behavioral and Economic Sciences (SBE). 1) The search for a new director of SBE is in progress. CEOSE has an opportunity to make recommendations and nominations. **Dr. David Lightfoot** has made a commitment to including a member of the advisory committee on the selection committee or the review committee. 2) Reports were given on two major initiatives: One was the science of science policy, and the other one was the science of broadening participation or the science of diversity. Both have made a good start. **Action Item: CEOSE urges SBE to continue to move forward on this the latter initiative.**

Continuation of Earlier Discussions; Q&A Period

Dr. Harris raised a question to **Drs. Poston** and **Hartline** regarding what action they wanted on the document, “Draft 1, February 24, 2008 Mandate for Broadening Participation” that they presented to the Committee. **Dr. Hartline** explained that she and **Dr. Poston** were asked to write an article for inclusion in a book, which is to contain a number of case studies on research experiences for undergraduates. This book is being prepared for the Council on Undergraduate Research. The contribution is to be a 2000 word section for inclusion in the introduction of the book. This article will make the case for broadening participation, which will be called a mandate. They were given a small outline based on the 2004 CEOSE biennial and decennial report. **Dr. Hartline** requested the committee’s thoughts on taking advantage of this opportunity to make the leadership of this book more aware of CEOSE as well as describe the case and approaches for broadening participation. She asked CEOSE members if they supported the idea of using the article as an opportunity to increase the general awareness of CEOSE. **Action Item: Drs. Hartline and Poston will send to CEOSE members for comments a copy of the article that they will draft for inclusion in the introduction of the book for the Council on Undergraduate Research.**

In response to a request, **Dr. Rohlfing** gave an update on the timeline for actions on the NSF Diversity Plan, the work of the NSF Broadening Participation Working Group. Once the document has been cleared for internal posting, it will be distributed to CEOSE for comments and further discussion. She also commented on broadening participation activities within the Chemistry Division, calling the attention of members to the workshop on under-represented minorities, which was co-sponsored with NIH, the chemistry community workshop on gender equity, and a new solicitation titled American Competitive Chemistry Fellowship.

Dr. Sunley reported that SBE has made its community aware of its interest in proposals in broadening participation and has been very successful in getting them, both in standard programs within such areas as the Science of Science and Innovation Policy Program within the Human and Social Dynamics priority area.

Dr. Maldonado requested that CEOSE review the public law document that created CEOSE in 1980, to better understand the role of this Congressionally-mandated advisory committee in partnership with NSF and Congress. A corollary to that is the NSF reauthorization act of 2002, which required the preparation of a long-term report. **Action Item: Dr. Harris requested that Dr. Tolbert put a discussion of the legislation that created CEOSE on the agenda for the next meeting.**

Dr. Hartline called the attention of CEOSE members to a proposal opportunity in EHR, which is based on integrating and innovating across all programs with at least one of the major goals being broadening participation. **Dr. Leddy** explained that this program is new, and it has among its goals to increase synergy and collaboration across existing NSF funded activities and institutions. In addition to implementation and collaboration, there is a separate part of it that focuses on research on -innovative collaborations. The award amount is up to \$200,000 per year for a five-year period, with years four and five depending on progress in the first three years. The deadline for proposals is April 10th.

Dr. Harris thanked CEOSE members, NSF staff, the Federal agency representatives, and other guests for participating in the meeting. He announced that the next meeting is scheduled for June 16-17, 2008. The CEOSE meeting was adjourned at 10:45 a.m.

CERTIFICATION OF THE ACCURACY OF THE CEOSE MEETING MINUTES

Dr. Wesley L. Harris, Chair of the Committee on Equal Opportunities in Science and Engineering, approved the meeting minutes on **May 5, 2008**, by e-mail message to Dr. Margaret E.M. Tolbert, CEOSE Executive Secretary and NSF Executive Liaison to CEOSE.